CLAIMS

1. A synchronization circuit, comprising:

a local timestamp counter configured to generate a local timestamp value; and

a processing circuit configured to receive synchronization pulses and a master timestamp value for a next synchronization pulse,

the processing circuit identifying the local timestamp value at the next received synchronization pulse and synchronizing the local timestamp counter according to the identified local timestamp value and the master timestamp value.

2. The synchronization circuit according to claim 1 wherein the processing circuit is located in a Cable Modem Termination System (CMTS) and receives the master timestamp value from another CMTS.

3. The synchronization circuit according to claim 1 wherein the processing circuit receives the master timestamp value asynchronously in Internet Protocol (IP) packets received over an IP connection.

4. The synchronization circuit according to claim 1 including a holding register configured to store the received master timestamp value.

5. The synchronization circuit according to claim 1 wherein the processor starts generating the master timestamp value and starts sending the master timestamp value to other synchronization circuits.

6. The synchronization circuit according to claim 1 wherein the synchronization pulse has a rate of somewhere between 8 Kilo Hertz and 1 Hertz.

7. The synchronization circuit according to claim 1 wherein the processing circuit identifies an error condition according to a number of times the local timestamp counter is synchronized with the master timestamp value.

8. The synchronization circuit according to claim 1 including multiple line cards in a same Cable Modem Termination System (CMTS) chassis that each have local timestamp counters that are adjusted according to the received master timestamp value and local timestamp values at the next received synchronization pulse.

9. The synchronization circuit according to claim 1 including a first CMTS including one or more line cards that are used for downstream channels and a second CMTS including one or more line cards that are used for upstream channels, cable modems receiving data on the downstream channels of the first CMTS and sending data on the upstream channels of the second CMTS.

10. A synchronization system, comprising:

a master synchronization circuit configured to identify a reference timestamp value at a first one of multiple synchronization pulses and estimates a master timestamp value for a later occurring one of the synchronization pulses according to the reference timestamp value, the master synchronization circuit forwarding the master timestamp value to a slave synchronization circuit for synchronizing at the later synchronization pulse.

11. The system according to claim 10 wherein the master synchronization circuit derives master timestamp values for a subset of the synchronization pulses.

12. The system according to claim 10 wherein the master synchronization circuit sends the master timestamp value asynchronously to the slave synchronization circuit over an IP network.

13. The system according to claim 10 including a first Cable Modem Termination Systems (CMTS) having a first chassis containing the master synchronization circuit and a second CMTS having a second separate chassis containing the slave synchronization circuit.

14. The system according to claim 13 including multiple lines cards in at least one of the first and second CMTS that includes multiple slave circuits each synchronized the master timestamp value at the later occurring synchronization pulse.

15. The system according to claim 10 wherein the slave synchronization circuit adjusts the received master timestamp value according to an amount of delay associated with receiving the synchronization pulses.

16. A method for synchronizing circuitry, comprising:

receiving a master timestamp value for an upcoming time reference over an asynchronous connection;

generating a local timestamp value;

comparing the local timestamp value at the upcoming time reference with the master timestamp value; and

synchronizing the local timestamp value according to the comparison.

17. A method according to claim 16 including determining a period for the time reference and then estimating the master timestamp value by adding the determined period to a timestamp counter value at a current pulse of the time reference.

18. A method according to claim 16 including receiving the master timestamp value from a first cable modem termination system (CMTS) and using the master timestamp value to synchronize a timing circuit in a second CMTS.

19. A method according to claim 16 including:

synchronizing the timing circuitry in a first Cable Modem Termination System (CMTS) with the timing circuitry in a second CMTS;

using the first CMTS to send data to cable modems; and

using the second CMTS to receive data from the same cable modems.

20. A method according to claim 16 including receiving the master timestamp value in a Internet Protocol (IP) message.